The maximum displacement in mm had no influence on acute GI toxicity (p=0.63) nor acute GU toxicity (p=0.73).
For both acute GI (p=0.36) and GU (p=0.56) toxicity the number of displacements was not statistically significant.
No statistically significant differences were seen in late GI toxicity between NDP (9.4%) and DP (8.6%) (p=1.0), while late GU toxicity was significantly higher in NDP (30%) versus DP (16%) (p=0.04). However, in a multivariate analysis including risk factors; age, baseline toxicity, IPSS, Comorbidity, number of needles, and prostate volume, the difference in late GU between the DP and NDP was not significant anymore (P=0.08).
The influence of maximum displacement was not significant for late GI (p=0.71) nor GU (p=0.49) toxicity.
The number of displacements was also not significantly associated with both late GI (p=0.73) and GU (p=0.60) toxicity.
Conclusions: Corrected displacement during the 4 fractions regimen of HDR monotherapy did not lead to an increase in acute nor late GI and GU toxicity confirming the feasibility of our correction protocol to ensure a safe HDR treatment regimen.

Proffered Papers: Brachytherapy 1: Rectal, head and neck, bladder, breast

OC-0037

CT-guided radioactive seed implantation as a salvage modality for locally recurrent rectal cancer

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Purpose/Objective: To evaluate the efficacy of CT-guided radioactive seed implantation for locally recurrent rectal cancer (LRRC) , and analyze the associated prognostic factors.
Materials and Methods: From September 2003 to October 2014, 97 patients with locally recurrent rectal cancer received ^{125}I seeds implantation under CT guidance in our center. Each patient underwent three-dimentional treatment planning pre-implantation and dosimetric verification post-implantation. The range of activity of seed was from 0.40 to 0.8 mCi, and the range of seeds number was from 18 to 137. The range of D_{90} was from 75.91 to 165.27 Gy. Overall survival of the patients was calculated and prognostic factors were evaluated.
Results: The follow-up rate was 93.5%, the median follow-up time was 15.7 months (4.2 ~ 98.1 months). The response rate of pain relief was 95.2%. The overall response rate was 51.6%, in which complete response rate was16.1% and partial response rate was 35.5%. The 1, 2 and 3 year local control rates were 32.3%, 11.3% and 11.3%, respectively. The median local control time was 8.0 month. The 1, 2 and 3 year survival rates were 67.6%, 36.0%and 7.5%, respectively. The median overall survival time was 21.5 months. Analysis using the Cox proportional hazards model suggested that patients with pre-sacral recurrence and patients who received a D90 higher than 140 Gy may survive for a longer period.
Conclusions: CT-guided radioactive seed implantation provides a safe and effective method to relieve pain, control local tumor growth and, to some extent, prolong the survival of patients with locally recurrent rectal cancer without additional complications. It is an alternative treatment option for locally recurrent rectal cancer, especially for those with previous pelvic radiation. Location of recurrent tumor and accumulated dose may be factors predictive of a favorable outcome for patients. These findings need to be validated by conducting further studies with larger cohorts.

OC-0038

Clinical outcomes with high dose rate surface mould brachytherapy in head and neck cancers

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Purpose/Objective: Surface mould brachytherapy (SMB) is a century old technique which can be used for various sites such as skin, nose, ear and hard palate in the head and neck region. There is scarcity of data on high dose rate (HDR) SMB. Aim of this study is to evaluate the outcomes of patients treated with SMB technique.
Materials and Methods: Patients with malignant localized early T1 or T2, node negative lesions in the head and neck region treated with SMB during 2008-2013 were considered. Individualized mould was prepared for all patients. Three dimensional CT based planning was carried out with the mould in situ using the Plato planning system (Nucletron). The median number of catheters was 5 (Range 3-7). Treatment was delivered using HDR 192 Ir source to a dose ranging from 39 to 52.5 Gy (mean 49 Gy) with 350cGy per fraction, using bid regimen. Median number of catheters used were 5 (range 3 to 7). For the present analysis the data was extracted from a prospective brachytherapy database as well as from patient charts. The data was analysed using SPSS software (V18). Survival analysis was done using Kaplan Meier method.
Results: Thirty one patients were treated with SMB. The median age at presentation was 53 years (range 25-82 years). Most of the patients were males (n=24). The most common site was hard palate in 14 (45%), followed by nose in 7 (22.5%), soft palate in 5 (16%), tonsil in 2 (6.5%), skin over face in 2 (6.5%) and pinna 1 (3.5%). The histology was squamous carcinoma in 27 patients, while the rest were basal cell carcinoma. The median tumor size was 2 cm. Treatment was given in the primary setting in 29 and recurrent setting in 2 patients. Twenty three patients received the SMB as definitive, radical treatment while in 8 it was used as boost after external beam radiotherapy. Acute skin toxicity was seen in 17 patients of which 10 were grade II reactions. Acute mucosal reactions were seen in 19 with grade II in 10 and grade III in 1. Median follow up was 29 months (range 4 to 78 months). Eight patients had recurrent disease (4 primary, 3 isolated nodal recurrences and 1 primary and nodal recurrence). Two patients had died at 4 months and 14 months. Three year DFS was 70% and 3 year overall survival was 91%. Grade 1 mucosal atrophy was seen in 22. Grade 1 xerostomia was seen in 6 and grade II for 1 patient (all of them had received external radiotherapy). On long term follow up osteo- necrosis was seen for 2 of which 1 recurrence had at the primary site. Skin hypopigmentation was seen in 3 while telangiectasia was seen in 9 patients.
Conclusions: Surface mould brachytherapy results in acceptable locoregional control rates and good overall survival with excellent organ and function preservation.

OC-0039

Local recurrence after interstitial radiotherapy in bladder cancer

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